



*International Civil Aviation Organization*  
CAR/SAM Regional Planning and Implementation Group (GREPECAS)  
**Fifth Meeting of the Air Traffic Management / Communications,  
Navigation and Surveillance Subgroup (ATM/CNS/SG5)**  
Lima, Peru, 13-17 November 2006

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**Agenda Item 7:           Other business**

Operational Approval For Required Navigation Performance 10 (RNP 10)

West Atlantic Route System (WATRS) Plus Airspace Redesign and Separation Reduction Initiative

(Presented by the United States of America)

**SUMMARY**

One of the major objectives of the WATRS Plus Airspace Redesign and Separation Reduction Initiative is for a significant majority of operators/aircraft operating in WATRS Plus airspace to obtain operational approval for RNP 10. This IP contains a briefing outlining the RNP 10 operational approval process. The briefing was given by an FAA Flight Standards representative on 19 September 2006 at the NAT/CAR ATS Routes Working Group in Miami, Florida.

**1.           Introduction**

1.1           The United States is developing and coordinating the WATRS Plus Airspace Redesign and Separation Reduction Initiative. WATRS Plus airspace includes WATRS airspace, Miami oceanic airspace in the Atlantic and San Juan FIR airspace. The major objectives of this initiative are to:

- a)           Reduce lateral separation from 90 nm to 50 nm for aircraft/operators approved for RNP 10 or better;
- b)           Have WATRS-Plus operators obtain operational approval for RNP 10 or better from the appropriate State authority;
- c)           Redesign WATRS-Plus airspace to enable more efficient operations and enhance enroute efficiency/capacity; and
- d)           Harmonize WATRS-Plus transition to/from Caribbean and North Atlantic Regions' airspace and/or route structures.

**2. Discussion**

2.1 The attached briefing (**Appendix** to this Information Paper) provides information in support of objective b) above. It outlines the RNP 10 operational approval process, identifies ICAO and FAA policy documents and provides related websites and contacts. An FAA Flight Standards representative gave the briefing on 19 September 2006 in Miami, Florida at the NAT/CAR ATS Routes Working Group meeting.

2.2 The presentation is available at the following website address:  
[www.faa.gov/ats/ato/natcar\\_wg.htm](http://www.faa.gov/ats/ato/natcar_wg.htm)

**3. Actions Suggested**

3.1 The Meeting is invited to note the information in this paper.

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ATM/COMM/5 IP/03

# WATRS Plus Airspace Redesign and Separation Reduction

## Operational Approval for RNP 10

Presented by: Robert Swain  
Representing FAA Flight Technologies  
and Procedures Division (AFS-400)

Date: 19 September 2006




Federal Aviation  
Administration



## Introduction

- RNP 10 applied to enable 50NM lateral separation in Pacific oceanic operations since 1998
- RNP 10 applied in EUR/SAM Corridor since Oct 2001
- This briefing provides an overview of:
  - operator and aircraft RNP 10 requirements and...
  - policy and processes for operators to obtain operational approval for RNP 10

WATRS Plus Operational Approval for RNP-10  
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## APPLICABLE ICAO DOCUMENTS

- ICAO Document 9613 (Manual On Required Navigation Performance (RNP))
  - **Appendix E: Guidance Material For The Development Of An RNP 10 Operational Approval Process**
- ICAO Performance Based Navigation (PBN) Manual.....under development
  - **Draft Vol. II, Chapter 1 is “RNP 10 Operations”**

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## ICAO DOCUMENTS (CONT.)

ICAO Doc 9613 offers as example State approval processes:

- **FAA Order 8400.12** (Required Navigation Performance 10 (RNP 10) Operational Approval) and...
- **Australian Civil Aviation Advisory Publication RNP 10-1**

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## APPLICABLE FAA Documents

- **FAA Order 8400.12A**
  - Will be updated to delete dated material
  - Do not anticipate significant policy changes
- **FAA Order 8400.33** (Authorization for RNP-4 in Oceanic and Remote Area Operations).
- **Both documents now posted on FAA Webpage:** CNS Requirements & Options & Operational Policy in Pacific Oceanic Airspace, Sections 2 & 3
  - [www.faa.gov/ats/ato/cns.htm](http://www.faa.gov/ats/ato/cns.htm)

## FAA Documents (Cont.)

- **Handbook Bulletin** (HBAT 98-16A, HBGA 98-03A) (Approval of Aircraft and Operators for Flight in Airspace Where RNP-10 Is Applied)
  - Will be updated & incorporated into FAA Inspector Handbooks
- **Operations Specifications Paragraph:** B036 (Class II Navigation Using Multiple Long-Range Navigation Systems (LRNS))
- **IGA Automated Letter of Authorization (LOA):** LOA B036 (Operations in Required Navigation Performance Airspace)

## Content of Application For RNP-10 Operational Approval

1. **RNP 10 Aircraft Eligibility Group:** airworthiness documents that establish aircraft/navigation system group, its RNP-10 approval status, and list of airframes
2. **Approved RNP 10 Time Limit For Aircraft Equipped With Only INS or IRU Systems**

## Content of Application For RNP 10 Operational Approval

3. **RNP 10 Area of Operations For INS or IRU Only Aircraft:** documentation that establishes RNP 10 area of operations or tracks for which the specific aircraft/navigation system is eligible
  - Show method and effect of aircraft position updating enroute
  - Conduct route evaluation in accordance with 8400.12, paragraph 15

### Content of Application For RNP 10 Operational Approval

- 4. Operating Practices and Procedures:** documentation that operator has adopted operating practices and procedures related to RNP 10 operations
- 5. Pilot and Dispatcher Training:** documentation that operator pilot and if applicable, dispatcher knowledge of RNP 10 policy & procedures will be adequate.
  - For commercial Air Transport operators: training programs updated

### Content of Application For RNP 10 Operational Approval

- 6. Maintenance Practices and Procedures:** documentation that appropriate maintenance practices and procedures have been adopted
- 7. Minimum Equipment List (MEL):** MEL updates, if applicable.
- 8. Operating History:** operating history identifying past problems and incidents, if any, and actions taken to correct the situation.

### Content of Application For RNP 10 Operational Approval

- 9. Follow-up Action After Navigation Error Reports and Potential For Removal of RNP 10 Operating Authority:** awareness of necessity for follow up action after navigation error reports and the potential for removal of RNP 10 operating authority.

### RNP 10 Navigation System Requirements

- Two operational Long-Range Navigation Systems (LRNS) meeting RNP 10 standards required
- **RNP 10 time limit for INS & IRU systems:** 6.2 hour time limit between position updates for aircraft on which INS or IRU's serve as the only LRNS
  - unless extended time limit approved in accordance with 8400.12

### RNP 10 Time Limit for INS & IRU Systems (cont.)

- Extended RNP 10 time limits of 10 hours & greater already approved for many IRU systems
- Time limit may be issue for INS only equipped aircraft on westbound flights entering WATRS Plus airspace from Europe, Africa and the Mid-East.



### 8400.12 Aircraft RNP 10 Eligibility Groups

#### Eligibility Group 1 – Aircraft Eligibility Through RNP Certification

- RNP compliance documented in Airplane Flight Manual (AFM)
  - Typically not limited to RNP 10
  - Example: B747-400 or A-340 incorporating FANS 1/A package



### 8400.12 Aircraft RNP 10 Eligibility Groups

#### Eligibility Group 2 – Eligibility Though Prior Navigation System Certification

1. Dual INS or IRU's approved in accordance with **Part 121, Appendix G** (6.2 hour RNP 10 time limit, unless action taken to extend)
2. Dual INS or IRU **approved for NAT MNPS or Australian RNAV operations** (6.2 hour RNP 10 time limit unless action taken to extend)



### RNP 10 Eligibility Group 2 (cont.)

3. Dual GPS approved for **primary means of navigation in oceanic and remote areas**
  - Approved in accordance with **AC 20-138 (as amended)** (34-minute limit on Fault Detection & Exclusion (FDE) non-availability)
  - GPS/WAAS systems installed in accordance with AC 20-138A incorporate primary means capability
    - **TSO-C145a and TSO-C146a are applicable**



### RNP 10 Eligibility Group 2 (cont.)

- 4. Multi-sensor systems integrating GPS (GPS integrity provided by RAIM or Aircraft Autonomous Integrity Monitoring (AAIM))....approved in accordance with **AC 20-130A**
- 5. Single INS or IRU and single TSO C-129 authorized GPS with approved FDE
  - 34-minute FDE non-availability time limit

### 8400.12 Aircraft RNP-10 Eligibility Groups

#### Eligibility Group 3 – Aircraft Eligibility Through Data Collection

- 1. **8400.12, Appendix 1 (Sequential Method):**  
uses Pass/Fail graphs to assess INS or IRU performance and RNP-10 time limit
- 2. **8400.12, Appendix 6 (Periodic Method):**  
allows use of hand-held GPS to assess INS or IRU performance and RNP-10 time limit

### Contacts

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- **Roy Grimes (CSSI, Inc., FAA Program Support)**
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Questions?